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EXAMINER

CHU, KIM KWOK

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/563,274	Applicant(s) SHIONO ET AL.	
	Examiner Kim-Kwok CHU	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed on 1/27/2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 7-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-10,13,14,16,18 and 19 is/are rejected.
- 7) ☒ Claim(s) 3,11,12,15 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Response to Remarks

1. Applicant's Remarks filed on January 27, 2009 have been fully considered but they are not persuasive.

Applicant does not agree that the prior art of Sugaya et al. (U.S. Patent 5,602,825) teaches "recording information three-dimensionally" (page 8 of Remarks, lines 3 and 4). Accordingly, the prior art of Sugaya disclosed that the information 10 as illustrated in Fig. 1 is a three-dimension recording pit used to store data as required in Applicant's amended Claim 1. Furthermore, Applicant states that the prior art of Sugaya does not teach a device that adjusts the positioning of a first semiconductor laser light (page 8 of the Remarks, lines 10 and 11). According, the prior art of Sugaya's tracking operation inherently includes a device such as a tracking servo means in order to move/adjust the laser source as illustrated in Fig. 3.

Applicant further argues that the prior art of Sugaya does not teach a light polarized light component (page 8 of Remarks, lines 24 and 25). Accordingly, the amended feature "an optical component to switch the state of polarization of the reproduction light" is not a required limitation in Claim 1 because it is under a "or an optical component" condition. In other words, according to Claim 1, as long as the

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positioning of the first laser light source is adjusted to a predetermined condition, the optical component for switching the polarization of reproduction light is not a necessarily requirement. On the other hand, even the polarization of a reproduction light is required, the prior art of Sugaya's beam splitter 22 as illustrated in Fig. 2 switch (control) the light polarization between the incident light and the reflecting light as their polarizations are different to each other.

Specification

2. The disclosure is objected to because of the following informalities:

In the abstract, the label "(22b)" should be changed to --(22a)--.

Appropriate correction is required.

3. Claims 1-3, and 7-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, lines 22-23 recites the limitation of "and positioning of the first semiconductor laser light source

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is adjusted to a predetermined condition". The limitation is vague and indefinite as the claim does not have any structure to support for this functional limitation.

Regarding claim 2, line 2, "is linearly polarized light that is polarized perpendicular to the track direction of the information recording medium" is confusing in light of the limitation "or an optical component.....is polarized perpendicular to the track direction of the information recording medium" whether the "polarized light component" of the main component is meant to be further limited to a "linearly polarized light that is perpendicular to the track direction of the information recording medium". It is unclear whether functional language "is linearly polarized light" is meant to be the function of the "an optical component"? If so, claim 2 should be read -The optical information reproduction device according to claim 1, wherein said polarized light component is a linear polarized light component--.

Regarding claim 3, similar comment to that of claim 2 is repeated. Perhaps, claim 3 should be read ---The optical information reproduction device according to claim 1, wherein the polarized light component is an elliptical polarized light component---.

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Regarding claim 10, lines 3-5, "a recording unit included in the recording unit" is unclear and confusing. Perhaps, this should be read--a recording layer included in the recording unit--to be consistent with claim 1. Further, lines 6-8, the limitation "the recording light focused on the recording unit includes as its main component a polarized light component that is..." is functional language that is not clear what function to give the result of "a polarized light component that is polarized perpendicular to the track direction of the information recording medium". It appears that the "an optical component" recited in claim 1 may be meant to be the source but the claim fails to positively claim as so that renders the claim language vague, unclear and confusing.

Regarding claim 11, lines 4-5, " a recording unit included in the recording medium" is confusing because it is not clear if applicant means to refer back the "a recording unit" recited in claim 1 or a different "recording unit". Further, lines 6-16, the limitation "the wavelength....polarized light." is confusing in light of claim 1. Claim 1 recites "an optical component" which reads in light of specification would be element 10. Element 10 converts reproducing light and recording light as claimed in both claim 1 and claim 11. However, claim 11 claims "an optical component" that is different from the "an optical

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component" recited in claim 1 to function for the same result is confusing.

Regarding claim 12, line 2, "the optical component" is not clear and is confusing as which optical component (i.e., the one recited in claim 1 or in claim 11) is meant.

Claims which have not been mentioned are rejected because they are dependent on rejected claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless --
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

4. Claims 1, 2, 7, 10, 13, 14, 16, 18 and 19 are rejected under 35 U.S.C. § 102(b) as being anticipated by Sugaya et al. (U.S. Patent 5,602,825).

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Sugaya teaches an optical information reproduction device having all of the elements and means as recited in claim 6. For example, Sugaya teaches the following:

With respect to Claim 1, the optical information reproduction device comprising: an information recording medium 100 (Fig. 17) that includes a recording unit 207 (laser diode) having a multilayer structure of recording layers (Fig. 16B) capable of recording information three-dimensionally (Figs. 1, 16A and 16B; pit 10 is three-dimensional) and reproducing information recorded on one of the recording layers through any of the other recording layer or layers (Figs. 16A and 16B; recording layers can be selected to read the information stored in the layers) and provided with a track (Fig. 3; abstract) having a specific track pitch (abstract), with which information is recorded by forming a plurality of recording marks 10 (pits) along the track of the recording unit by a mark length recording method (Fig. 3; pits 10 have length to represent data), and when the track direction of the recording marks is assumed to be their longitudinal direction and the direction perpendicular to the track direction is assumed to be their lateral direction (Fig. 3), for recording marks 10 located substantially in the same plane (Fig. 3), the total area of elongated recording marks 10, whose longitudinal

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length is greater than their lateral length (Fig. 1), is greater than the total area of recording marks having other than elongated shapes (Fig. 3; elongated data 10 cover more medium area than other non-data area); a first semiconductor laser light source 207 (Fig. 17) for emitting reproduction light having a wavelength λ_1 ; an objective lens 203 (Fig. 17) for focusing the reproduction light emitted from the first semiconductor laser light source 207 on the recording unit (recording region/sector) of the information recording medium 100 (Fig. 17); and a first photodetector 212 (Fig. 17; column 10, lines 3) for detecting a reproduction signal from the reflected light from the recording unit, wherein the information recording medium 100 has a track pitch of no more than 1.3 times the wavelength λ_1 of the reproduction light (Fig. 3; abstract), positioning (Figs. 3 and 17; tracking) of the first semiconductor laser light source 207 is adjusted to a predetermined condition, or an optical component 209 is provided along the optical path between the first semiconductor laser light source 207 and the objective lens 203 so as to switch (control) the state of polarization of the reproduction light emitted from the first semiconductor laser light source 207 (Fig. 2; incident light and reflecting light each has different light polarization), whereby and when focused on the information

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recording medium 100, the reproduction light emitted includes as its main component 24 (Fig. 2) a polarized light component that is polarized perpendicular to the track direction of the information recording medium (Fig. 2; column 6, lines 32-44).

With respect to Claim 2, the reproduction light focused on the recording unit (recording region/region) is linearly polarized light that is polarized perpendicular to the track direction of the information recording medium (Fig. 2).

With respect to Claim 7, the first light source 207 further emits recording light with a wavelength of λ_2 (Fig. 17; laser emits a light with a wavelength range from λ_1 to λ_2).

With respect to Claim 10, the first light source 207 (Fig. 17) further emits recording light with a wavelength of λ_2 (Fig. 17; laser emits a light with a wavelength range from λ_1 to λ_2), the objective lens 203 focuses the recording light on a recording unit included in the recording unit (Fig. 17), and the recording light focused on the recording unit (recording region/sector) includes as its main component a polarized light component that is polarized perpendicular to the track direction of the information recording medium (Fig. 2).

With respect to Claim 13, the first semiconductor light source 207 (Fig. 17) further emits recording light with a wavelength of λ_2 , the wavelength λ_1 of the reproduction light is

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shorter than the wavelength λ_2 of the recording light (Fig. 17; laser emits a light with a wavelength range from λ_1 to λ_2).

With respect to Claim 14, the first light source 207 further emits recording light with a wavelength of λ_2 (Fig. 17; laser emits a light with a wavelength range from λ_1 to λ_2), the recording light is pulsed light (laser light is driven by pulse and therefore its generated beam is a pulse light), and information is recorded by using nonlinear absorption (recording medium has a nonlinear recording layer which discriminates light wavelengths).

With respect to Claim 16, a surface area of a light-receiving component 212 (Fig. 17) provided in the first photodetector is set to (being focused on) an area over which light conveying (read/write) target information included in the reflected light is received (Fig. 17).

With respect to Claim 18, the recording marks are voids (Fig. 1).

With respect to Claim 19, the recording marks are recording pits produced by refractive index changes (Fig. 1; pits are formed by refractive index changes as a result of thermal deformation of the layers of the recording medium).

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Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8 and 9, are rejected under 35 U.S.C. 103 (a) as being unpatentable over Sugaya et al. (U.S. Patent 5,602,825) in view of Fukakusa et al. (U.S. Patent 6,256,283).

Sugaya teaches an optical information reproduction device very similar to that of the present invention. However, Sugaya does not teach the following:

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(a) with respect to Claim 8, a second light source for emitting recording light with a wavelength of λ_2 ;

(b) with respect to Claim 9, the second light source is a semiconductor laser.

Fukakusa et al. teach the following:

(a) a second light source for emitting recording light with a wavelength of λ_2 (Fig. 1);

(b) the second light source is a semiconductor laser (Fig. 1).

A recording medium having multiple recording layers such as Sugaya's can be used as a hybrid storage medium where each layer has its own recording density, speed and laser power requirement etc. In other words, the hybrid medium can be a combination of CD and DVD recording medium. Since different recording type of medium such as CD and DVD requires different read/write laser beams respectively, it would have been obvious to one of ordinary skill in the art to add a second laser source such as Fukakusa's to the Sugaya's information device so that an additional light beam with different wavelength, power etc. can be used to read/write a hybrid recording medium modified from Sugaya's recording medium.

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Allowable Subject Matter

7. Claims 3, 11, 12, 15 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and to overcome the 112, 2nd rejection set forth above.

8. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claim 3, the prior art of record fails to teach or fairly suggest an optical information reproduction device having following feature:

the reproduction light focused on the recording unit is elliptically polarized light whose main component is a polarized

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light component that is polarized perpendicular to the track direction of the information recording medium.

As in claim 11, the prior art of record fails to teach or fairly suggest an optical information reproduction device having following feature:

the wavelength λ_1 of the reproduction light is different from the wavelength λ_2 , of the recording light and the optical information reproduction device further comprises an optical component, located along the optical path between the first light source and the objective lens, for switching between a polarization state of reproduction light emitted from the first light source and a polarization state of recording light emitted from the first light source or a second light source, and for utilizing this difference in wavelength so that the reproduction light focused on the recording unit will include as its main component a polarized light component that is polarized perpendicular to the track direction of the recording unit, and so that the recording light focused on the recording unit will be circularly polarized light.

As in claim 15, the prior art of record fails to teach or fairly suggest an optical information reproduction device having following feature:

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a pinhole plate that is disposed along the optical path between the information recording medium and the first photodetector, and has a pinhole that transmits light conveying target information included in the reflected light.

The features indicated above, in combination with the other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

Related Prior Art

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yanagawa et al. (5,673,245) is pertinent because Yanagawa teaches an elliptically polarized light beam in an optical system.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action

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is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kim CHU whose telephone number is (571) 272-7585 between 9:30 am to 6:00 pm, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen, can be reached on (571) 272-7579.

The fax number for the organization where this application or proceeding is assigned is (571) 273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9191 (toll free).

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/Kim-Kwok CHU/

Examiner AU2627

April 3, 2009

(571) 272-7585

/HOA T NGUYEN/

Supervisory Patent Examiner, Art Unit 2627